DWR Climate Change BLOG

This blog has been approved for posting to public websites, as well as DWR's internal website.

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By Jessica Rossell

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Jessica spent two weeks at the CA Dept. of Water Resources in October, 2010. In addition to attending meetings and briefings climate change policy, she presented to the Climate Change Matrix Team, attended the 2010 Water & Climate Change Adaptation Symposium and made friends throughout the state's water community. Jessica currently leads projects to identify climate change risks to NSW public land; helps develop methods to assess climate change risks to energy, water and transport infrastructure and to integrate climate change impacts into local government planning.

Her climate blog will appear in two parts; the first in December, 2010; the second in January, 2011.

All material represents the personal opinions of Jessica Rossell and does not represent the views of the NSW Department of Environment, Climate Change and Water.

It was with some trepidation that I walked out of the Sacramento Hostel on the morning of Monday 4 October. My destination was the Bonderson Building, 9th Street; my purpose: to shadow Department of Water Resources staff for two weeks and soak up (pun intended) as much as I could about California's approach to water and climate change.

It had all started several months earlier, when John Andrew kindly agreed to host me as a representative of the New South Wales Government working in climate change adaptation. Somehow we navigated the approvals process of two State bureaucracies and I emerged with an arrival date and a meeting schedule the envy of a Federal Secretary.

My own agency, the NSW Department of Environment, Climate Change and Water (DECCW)[1] is responsible for developing and coordinating adaptation and mitigation policies and programs for the rest of the Department and the NSW Government as a whole. This gives us a unique role of driving the climate change agenda not only within the environment portfolio, but for a number of other sectors such as health, emergency management, and Government infrastructure.

[1] The NSW Department of Environment, Climate Change and Water is an amalgam of a number of State agencies including the former State Park Service, EPA, Department of Natural Resources, and Department of Water and Energy (Water). It is responsible for developing and coordinating programs to address the impacts of climate change in NSW, regulating air, noise, and water pollution, protecting and conserving the natural environment and Aboriginal cultural heritage across NSW, managing national parks, marine parks, aquatic reserves and other conservation reserves, managing botanic gardens, ensuring reliable and sustainable water supplies for people and the environment, and guiding the sustainable management of natural resources, including coastal environments and floodplains. For more information see www.environment.nsw.gov.au

On arrival I was immediately struck by DWR's fluency with adaptation as we now understand it –climate modelling and its limitations, risk and sensitivity analysis, no regrets measures, etc-as well as its commitment to developing the next generation of climate change plans via sophisticated scenario modelling and policy testing.

I was also impressed with how climate change adaptation and communication was embedded within DWR's organisational structure- from my point of view, DWR's network of officers in central and regional locations reflects the localised effects of climate change and recognises that education and outreach are essential to developing adaptation responses.

For us, climate change adaptation has become much more mainstream in the last few years. With DECCW's recent release of regional climate and biophysical projections for NSW [http://www.environment.nsw.gov.au/climatechange/understanding.htm], and a NSW policy on sea level rise [http://www.environment.nsw.gov.au/coasts/coastalerosionmgmt.htm] many more people are asking how they'll be affected by climate change and what they can do about it.

Some quick facts about NSW climate and water

- NSW has a very high climate variability, particularly in relation to rainfall. Annual average rainfall varies from less than 200 mm[2] in the north-west of NSW, to more than 1800 mm along the north-east coast.
- Most people live in urbanised coastal areas where temperatures are mild for most of the year. The arid north west of NSW regularly experiences very high temperatures and sub-freezing temperatures can occur in the southern alpine regions. Irrigated and dryland agriculture dominates the inland and southern parts of the State.
- The total average annual surface water resource for NSW is 42,000 GL. River flows in NSW are highly variable both seasonally and year to year.
- NSW has enough groundwater to cover the whole of the state (80 million hectares) to a depth of 11.5 m. Groundwater is spread unevenly across the State- some bores are "dry" whereas others can yield over 30ML/day.
- Outside the metropolitan centres, over 130 towns and 220,000 people rely to some degree on groundwater for domestic supplies. Demand for groundwater to meet human needs is growing.

Issues for NSW

Many NSW rivers have been historically over-allocated, leading to the degradation of riverine and wetland ecosystems. Competition for scarce water resources has increased dramatically as the effects of unprecedented drought- partly attributed to climate change- take their toll. Tension between irrigation versus environmental water users is particularly strong. Finally, much more information is needed to monitor, assess and forecast water availability, water use and water condition.

It was a welcome surprise to find DWR conversant with issues surrounding the Murray Darling Basin (50% of which lies in NSW); in my experience Australia barely rates a

[2] Measurements use the metric system

mention in the international press (although we're top of the charts on the English backpacker circuit). The Australian water market is still fairly new but expanding as local and foreign interests recognise its investment potential - $3 billion worth of water was traded in 2009 alone. Both Australian and NSW Governments are significant purchasers of water and have established comprehensive State and Federal programs to buy-back water for environmental flows.

Recently the independent Basin Authority, which is responsible for setting the amount of environmental water to be returned to the Basin, released a Guide proposing to significantly cut irrigation water allocations. This has sparked heady debate (including actual bonfires) within the farming sector and public information sessions are now being held to try and bring communities on board. During my trip DWR Legal asked me some incisive questions about water trading and licensing which went beyond my expertise, but I can say that the issue of water trading and future water availability in the Murray Darling Basin is very much an evolving area of science, law and policy and probably one to watch [http://www.environment.gov.au/water/australia/index.html]

The NSW Government is carrying out a lot of impact analysis to gauge the effects of future climate change on biophysical and human systems. Current projects include looking at how climate change will affect the different components of the urban water cycle; developing methods to assess interdependencies regarding water, energy and transport service delivery; quantifying future changes in extreme events and developing a regional climate model for NSW. We're also gradually building this information into existing policy and management frameworks.

My sincere gratitude goes to all DWR staff for being so generous with their time. I'd like to express my particular thanks to Elissa Lynn, Michael Healey, Katie Spanos and Greg Smith for going beyond the call of duty and welcoming me so warmly to Sacramento. My thanks also to Dale Hoffman-Floerke for kindly fitting me in to what is no doubt a busy schedule. Lastly, my heartfelt thanks to John Andrew for making the whole thing possible.

It was clear from the many conversations I had both within and outside the agency that DWR is very much a leader on climate change adaptation. I hope DECCW and DWR can continue what was for me, an exciting and richly rewarding exchange of ideas and experience.

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Part 2 of Jessica's climate blog will appear in January, 2011, with a more technical focus on the climate change work being done at both DWR and NSW.

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